

ness of which I am daily obtaining fresh evidence, I may represent as follows the biological cycle of the Aphis of the Pistachio.

In May and June the egg deposited on the Pistachio by the fecundated female hatches and produces an apterous insect; this is

The *Founder* (first larval form). It produces the gall; and after four moults it produces, in its quality of *vivigemmie pseudogyne*, young Aphides, destined to acquire wings and to furnish, after four moults,

The *Emigrants* (second larval form), which quit the gall, fly to the grasses, and then produce apterous young, which are

The *Budders* (third larval form). These bud underground, producing a longer or shorter series of apterous generations, until the period of swarming and of the appearance of nymphs, which furnish

The *Pupifera* (fourth larval form), which issue from the ground and fly to the Pistachio, where they deposit their pupæ, which very quickly produce the sexual individuals which copulate, and of which the female deposits the fecundated egg which serves as the starting point.

I hope soon to be able to give the complete history of other insects of the group Pemphiginæ; for M. Courcey has already been able to rear two more (*Pemphigus follicularius* and *P. semilunarius*) upon grasses, and those of the poplar and elm are too abundant long to escape our investigations with the data already acquired.—*Comptes Rendus*, November 18, 1878, p. 782.

A new Order of Extinct Reptiles (Sauranodonta) from the Jurassic Formation of the Rocky Mountains. By Professor O. C. MARSH.

The absence of the genus *Ichthyosaurus* in the extinct fauna of this country has long been a noteworthy feature; for up to the present time no traces of it have been detected, although its remains are especially abundant in Europe. An interesting specimen, recently discovered in the Rocky-Mountain region, presents, in most of its skeleton, the characteristics of that genus, but is *without teeth*. The vertebræ, ribs, and other portions of the skeleton preserved cannot be distinguished from the corresponding parts of *Ichthyosaurus*; and many features of the skull show a strong resemblance. The general form of the skull is the same. The great development of the premaxillaries, the reduced maxillaries, the huge orbit, defended by a ring of bony plates, are all present; but the jaws appear entirely edentulous and destitute even of a dentary groove.

The proportions of this reptile were very similar to those of *Ichthyosaurus*. The skull is about 2 feet (600 millims.) in length, and the facial portion especially produced. The orbits are very large, and the space between them is 140 millims. The sclerotic ring is composed of only eight plates; its diameter at the base is 106 millims., and at the apex 58 millims. These plates are not

arranged in a nearly flat ring, as in *Ichthyosaurus*, but form the basal segment of an elongated cone, as in the eyes of some birds. The vertebræ are short and deeply biconcave. The neural arch is articulated to the centrum. One trunk-vertebra measures 85 millims. in width, 38 millims. in length on the floor of the neural canal, and 21 millims. between the centres of the two rib-articular faces of the same side. The length of the entire animal was about 8 or 9 feet. The remains at present known are all in the museum of Yale College.

This reptile may be called *Sauranodon natans*, and the order it represents Sauranodonta. This genus bears a similar relation to the Ichthyosaurs that *Pteranodon* does to the true Pterodactyls; and it is interesting to find the two highly specialized forms preserved in the same region.

The geological horizon of the Sauranodontidæ, so far as now known, is in the Jurassic, immediately below the *Atlantosaurus*-beds. The accompanying fossils are *Anmonites* and *Belemnites*, showing more distinctly marine deposits, which may be called the *Sauranodon*-beds.—*Amer. Journ. Sci. & Arts*, January 1879.

Yale College, New Haven, Dec. 27, 1878.

Notice of a Tetrarhynchus.

Prof. Leidy stated that in the *Remora*, or Sucker, from our coast, presented this evening by Mr. Holbrook, he had found a curious parasite. This was enclosed in a compressed oval cyst, pearly white, thick-walled, and about half an inch long, tightly adherent to the intestine of the fish. The cyst contained a flask-shaped translucent whitish sac, which was feebly contractile, and furnished at the narrow end with two minute papillæ, which were slowly protruded and retracted. Within this sac-worm, coiled up about the centre, was an opaque white worm or scolex, which proved to be a *Tetrarhynchus*. Removed and extended it measured 7 lines long, and was divisible about equally into a broad anterior body portion, and a posterior narrow tail-like portion. The head was formed of a pair of obcordate bothria inclined from each other. Four long tortuous proboscides extended through the body and projected from the head. The projecting portions were successively elongated and shortened by eversion and inversion, and were armed with recurved hooks. The hooks extended within half the length of the proboscides, and, as they were everted and inverted, appeared like the streaming of liquid through narrow tubes. The tortuous proboscides at the bottom were continuous with as many elliptical pedestals placed at the back part of the body. The tail, about half the width of the body, was not segmented, but exhibited a disposition to assume this condition. The end was slightly tapering, and occupied by a bell-shaped sinus, opening externally, and alternately contracting and expanding. The interior of the sinus was lined, and its mouth thickly furnished with non-vibratile cilia. The species appeared to be undescribed, and was named *Tetrarhynchus tenuicaudatus*.—*Proc. Acad. Nat. Sci. Philad.* Oct. 15, 1878.